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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,195	11/26/2003	John F. Wirkus	GSIE 8803US	9038

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EXAMINER

NGUYEN, TU MINH

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/723,195

Applicant(s)

WIRKUS ET AL.

Examiner

Tu M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32-35 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-16, 18-27, 29-31, 36 and 37 is/are rejected.
- 7) ☒ Claim(s) 6, 17 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. An Applicant's Request for Continued Examination (RCE) filed on July 7, 2005 has been entered. Per instruction from the RCE, an Applicant's Amendment filed on June 24, 2005 has been entered. Claims 1, 11, 21, 23, and 34 have been amended; and claims 36-37 have been added. Overall, claims 1-37 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 7-11, 16, 18-20, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis (U.S. Patent 5,027,781).

Re claims 1, 11, and 36, as shown in Figures 1-5, Lewis discloses an afterburner and an exhaust gas recirculation valve system for a motor vehicle, the valve system comprising:

- an exhaust gas recirculation valve (10);
- an intake pipe (17) coupled to an intake orifice of the exhaust gas recirculation valve (10); and

- a screen (18) without a catalyst affixed to the intake pipe positioned adjacent to an exhaust gas manifold (14) so that the screen captures particles contained in an exhaust gas which are a size large enough to obstruct the exhaust gas recirculation valve.

Lewis, however, fails to disclose that the exhaust gas stream heats the screen to a temperature sufficient to burn the captured particles.

Since Lewis places the screen at a location adjacent to the exhaust gas manifold, constructs the screen from high temperature material such as stainless steel and ceramic, and fails to mention that the screen must be cleaned up occasionally to remove the trapped soot particles, it is obvious to one with ordinary skill that the screen is positioned such that the exhaust gas during a high load engine condition is hot enough to heat the screen to a temperature sufficient to burn the captured particles.

Re claims 2 and 16, in the valve system and afterburner of Lewis, the screen (18) is thimble-shaped.

Re claims 7, 8, and 18, in the system and afterburner of Lewis, the screen (18) is affixed to an intake pipe by welding or by mechanical means (lines 44-51 of column 3).

Re claims 9, 10, 19, and 20, in the valve system and the afterburner of Lewis, the screen (18) is made from a stainless steel with a high thermal conductivity (lines 51-53 of column 3).

4. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis as applied to claim 1 above, in view of legal precedent.

The afterburner of Lewis discloses the invention as cited above, however, fails to disclose that the screen has a mesh size of about 12 to 20, wherein the screen has a minimum size of 5 mesh, and a maximum size of 40 mesh.

Lewis claims the invention except for specifying an optimum range of mesh size for the screen. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a specific optimum range of mesh size for the screen, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

5. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis as applied to claim 11 above, in view of official notice.

The valve system of Lewis discloses the invention as cited above, however, fails to disclose that the exhaust gas recirculation valve is at least one of an integral backpressure type valve, a ported type valve, an electronic type valve, and a transducer type valve.

It is well known to those with ordinary skill in the art that the EGR valve utilized by Lewis is at least one of an integral backpressure type valve, a ported type valve, an electronic type valve, and a transducer type valve. Therefore, such disclosure by Lewis is notoriously well known in the art so as to be proper for official notice.

6. Claims 21-24, 29-31, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of official notice.

Re claim 21, as illustrated in Figures 1-5, Lewis disclose a method of trapping large particles in an exhaust gas stream of an internal combustion engine, the method comprising the steps of:

- utilizing a perforate screen (18) without a catalyst with an exhaust gas stream, the screen being located within the exhaust gas stream; and
- capturing large particles contained in exhaust gas stream with the screen.

Lewis, however, fails to disclose that the exhaust stream comprises at least one molar percent oxygen; and that the exhaust gas stream heats the perforated screen (18) to a temperature high enough to burn large particles to a size so that they can pass through the screen.

It is well known to those with ordinary skill in the art that during a soot burn-off of the screen, the exhaust stream must be lean of stoichiometric or contain excess air; or in other word, the exhaust stream must have at least one molar percent of oxygen. Therefore, such disclosure by Lewis is notoriously well known in the art so as to be proper for official notice.

Since Lewis places the screen at a location adjacent to the exhaust gas manifold, constructs the screen from high temperature material such as stainless steel and ceramic, and fails to mention that the screen must be cleaned up occasionally to remove the trapped soot particles, it is obvious to one with ordinary skill that the screen is positioned such that the exhaust gas during a high load engine condition is hot enough to heat the screen to a temperature sufficient to burn the captured particles to a size so that they can pass through the screen.

Re claim 22, in the method of Lewis, the screen is heated to a temperature of at least 900°F which is a generally accepted value for spontaneous combustion of soot trapped within a screen having no oxidation catalyst built within.

Re claim 23, as shown in Figures 1-5, Lewis disclose an afterburner for an internal combustion engine of a motor vehicle, the afterburner comprising a screen (18) without a

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catalyst affixed to an intake pipe (17) located upstream of an exhaust gas recirculation valve (10).

Lewis, however, fails to disclose that the screen captures and burns particles contained in an exhaust gas stream which are a size large enough to obstruct the exhaust gas recirculation valve; and that the exhaust gas stream continuously heats the screen to a temperature sufficient to burn the particles while the exhaust gas stream is at least 900°F.

Since Lewis places the screen at a location adjacent to the exhaust gas manifold, constructs the screen from high temperature material such as stainless steel and ceramic, and fails to mention that the screen must be cleaned up occasionally to remove the trapped soot particles, it is obvious to one with ordinary skill that the screen is positioned such that the exhaust gas during a high load engine condition is hot enough to heat the screen to a temperature sufficient to burn the captured particles which are a size large enough to obstruct the exhaust gas recirculation valve.

Since a temperature of at least 900°F is a generally accepted value for spontaneous combustion of soot trapped within a filter having an oxidation catalyst built within such as the one used in Lewis, it is obvious to one with ordinary in the art that the particles are burned within the screen at a temperature of at least 900°F.

Re claim 24, in the afterburner of Lewis, the screen is thimble-shaped.

Re claim 29, in the afterburner of Lewis, the screen (18) is affixed to an intake pipe by mechanical means (lines 44-51 of column 3).

Re claims 30-31, in the afterburner of Lewis, the screen is made from a stainless steel with a high thermal conductivity (lines 51-53 of column 3).

Re claim 37, in the afterburner of Lewis, the screen is affixed to an intake pipe (17) and positioned adjacent to an exhaust manifold (14).

7. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis as applied to claim 23 above, in view of legal precedent.

The afterburner of Lewis discloses the invention as cited above, however, fails to disclose that the screen has a mesh size of about 12 to 20, wherein the screen has a minimum size of 5 mesh, and a maximum size of 40 mesh.

Lewis discloses the claimed invention except for specifying an optimum range of mesh size for the screen. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a specific optimum range of mesh size for the screen, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Allowable Subject Matter

8. Claims 32-35 are allowed.

Claims 6, 17, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Communication

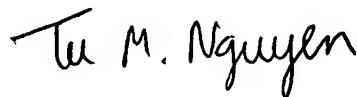
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TMN

August 8, 2005



Tu M. Nguyen

Primary Examiner

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